SPECIAL AIRWORTHINESS INFORMATION BULLETIN

Aircraft Certification Service
Washington, DC

U.S. Department of Transportation

Federal Aviation Administration

NE-07-03
October 12, 2006

http://www.faa.gov/aircraft/safety/alerts/SAIB

This is information only. Recommendations aren't mandatory.

Introduction

This Special Airworthiness Information Bulletin (SAIB) advises you, owners and operators of **all airplanes equipped with Pratt & Whitney Canada (P&WC) JT15D-5 series engine models** of recent incidents involving dual-engine flameouts. These engines are installed on, but not limited to, **Cessna Models 500, 501, 550, 551, S550, 560, and 560 Ultra; Mitsubishi Models 300 and 300-10; and Raytheon Models 400, 400A, and 400T**.

Background

Five high altitude, power loss events with four confirmed dual-engine flameouts have occurred on Raytheon Aircraft Company (RAC) Model 400 series airplanes powered by two P&WC JT15D-5 series turbofan engines. The FAA is investigating these incidents as a result of the November 28, 2005, event where engine power could not be restored and the airplane was "dead-stick" landed at Jacksonville, Florida. The investigation is centering on the possibilities of (1) engine internal icing within the low pressure compressor section of the engine, caused by high altitude "ice crystals", (2) possible rotor lock, and (3) possible fuel icing.

These events have been identified as occurring in a high altitude environment near convective weather systems which are often associated with thunder, lightning, and turbulence. Significant amounts of ice crystals can exist at high altitude near convective weather systems. Flight crews may not recognize the existence of ice crystals because they do not accumulate on cold airframe surfaces. However, even with no readily identifiable icing indications to the flight crew, ice may accumulate on warm surfaces inside the engine and affect engine operation. Therefore, there is no lower temperature limit for the operation of engine anti-ice systems.

In some of these power loss events, the flight crews did not report any significant weather radar indications, due to the low reflectivity of the dry ice crystals. Some reports were made of apparent rain on the airplane windshield while in these conditions, even though it is not possible to have rain at the reported altitudes and ambient temperatures. This reported rain is likely to be ice crystals rapidly melting on the windshield.

The FAA is working with RAC and P&WC on this subject. Identified Airplane Flight Manual (AFM) changes will provide operational procedures with the objective of preventing future occurrences of engine power loss. We further anticipate issuing an airworthiness directive (AD) mandating the AFM changes for all affected models. Owners and operators of RAC airplanes should refer to RAC Safety Communiqué No. 269 for further details.

Even though these events are still under investigation and all of the reported events have occurred on RAC Model 400 series airplanes, we believe it is prudent to also make this information available to operators of other airplanes that have P&WC JT15D-5 series engine models installed.

Recommendations

We recommend that you:

- Avoid convective weather activity whenever possible. Especially avoid flying over strong convective systems. If unavoidable, maintain vigilance for recognizing a potential ice crystal encounter as described in this SAIB and the potential for adverse engine operation.

- Be aware that ice crystals can accumulate within the engine at temperatures well below -25 °C, when near convective weather activity.

- Be aware that the ice crystal phenomenon may not always be visible on the weather radar.

- Follow the airplane AFM operational procedures when flying in or near convective weather.

For Further Information Contact

Ian Dargin, Aerospace Engineer, FAA Engine Certification Office, ANE-142, Burlington, Massachusetts 01803; phone: (781) 238-7178; fax: (781) 238-7199; email: ian.dargin@faa.gov